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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Jun-Ho Koh

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EXAMINER

BELLO, AGUSTIN

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/645,188

Applicant(s)

KOH ET AL.

Examiner

Agustin Bello

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 3-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Lehman (U.S. Patent No. 4,763,317).

Regarding claim 1, Lehman teaches an optical-line terminal (OLT) (reference numeral 110 in Figure 1) for receiving one or more broadcast signals (column 2 lines 27-30; column 7 lines 11-15), and one or more external data-communication signals (column 2 lines 27-30; column 7 lines 11-15) for converting the received signal (reference numeral 608 in Figure 10) and for combining (reference numeral 604 in Figure 10) the converted signals in the form of an optical signal, and transmitting the optical signal according to an optical wavelength-division multiplexing (WDM); an optical-network unit (ONU) (reference numeral 103 in Figure 1) for separating the optical signal transmitted from the OLT into the one or more broadcast signals (reference numeral 505 in Figure 9) and the one or more communication signals (reference numeral 506 in Figure 9) and transmitting only the broadcast signal(s) selected by a user from said one or more broadcast signals and the communication signals (column 19 lines 35-40; 55-58), which are multiplexed in an optical output signal from the ONU according to a predetermined time slot assigned to the user (column 19 lines 58-61; column 22 lines 57-61) and, a user gateway (reference numeral 104 in Figure 1) for distributing the optical signal output

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from the ONU to the user, wherein the ONU comprises a WDM optical demultiplexer (reference numeral 508a in Figure 9) for demultiplexing the signal output from the OLT (column 20 lines 33-36); a broadcast-signal processor (reference numerals 508a, 505 and 507 in Figure 9) for converting the broadcast signal (i.e. wideband signal) demultiplexed by the WDM optical demultiplexer opto-electrically (column 20 lines 36-44); a zapping-protocol processor (reference numerals 505 and 507 in Figure 9) for outputting information of at least one channel selected by the user from the signal output from the broadcast-signal processor (column 19 lines 35-43, 46-50); a switch (reference numerals 502 and 506 in Figure 9), wherein said zapping protocol processor (reference numerals 505 and 507 in Figure 9) receives digital broadcast signals for all the channels from the broadcast-signal processor (reference numeral 508 in Figure 9; column 19 lines 35-43), wherein a protocol for selecting a broadcast signal conforms to a related standard (i.e. video-on-demand or point-to-multipoint broadcast), a switch (reference numerals 502, 503, 506, 508 in Figure 9) for opto-electrically converting the communication signal demultiplexed by the WDM optical demultiplexer (reference numerals 508a in Figure 9), for electro-optically converting upstream information from the user (reference numerals 503b in Figure 9; column 18 lines 45-50) to transfer the converted upstream information to the OLT (column 19 lines 55-58), and for transferring the at least one channel selected by the user to the zapping-protocol processor (reference numerals 505 in Figure 9) a convergence unit (reference numerals 500 in Figure 9) for outputting, in the form of the time slot-based optical signal (i.e. time-division multiplexed signal on fibers 105, column 13 lines 52-55), the signal selected by the user and outputted from the zapping-protocol processor (reference numerals 505 and 507 in Figure 9) and the communication-signal output from the switch (reference numerals 502 and 506 in Figure 9).

Regarding claim 3, Lehman teaches that the user gateway is further operative to transmit upstream data sent by the user to the ONU (column 12 lines 13-15; column 15 lines 44-46).

Regarding claim 4, Lehman teaches that the ONU is further operative to process upstream data sent by the user (column 17 lines 65-68; column 18 lines 45-50).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lehman in view of Lin (U.S. Patent Application Publication No. 2002/0093969).

Regarding claim 2, Lehman teaches all the subject matter as recited in claim 1, but fails to specify that OLT multiplexes the broadcast signal into synchronous digital-hierarchy (SDH)/synchronous-optical-network (SONET) signal based on time division multiplexing (TDM) and that the OLT multiplexes communication signals into Gigabit-Ethernet signal. However, Lin teaches the OLT (central office) which is capable of simultaneously transmitting multiplexed data in both SONET and Gigabit-Ethernet formats (page 1 paragraph [0009], lines 11-19, 23-26), wherein the TDM-based data is transmitted during broadcasting without using a complex modulation scheme (i.e. a complex modulation scheme never being mentioned in Lin). It is desirable to simultaneously transmit broadcast signals as SONET signals based on time-division multiplexing and communication signals as Gigabit-Ethernet signals because it allows providing of real time high quality broadcast data transmission applications (page 2 paragraph

[0020] of Lin). Furthermore, it gives more flexibility to a user by allowing the user to change the allocated bandwidth, timeslots or clock cycles on request (page 3 paragraph [0036] lines 27-30). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include OLT access device as taught by Lin into the system of Lehman as to give more flexibility to a user and to allow providing of real time high quality broadcast/data transmission applications.

5. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lehman in view of Williams (US 5,808,767) and Ovadia (US 6,400,720).

Regarding claim 6, Lehman discloses all the subject matter as set forth in claim 5, but fails to teach (A) that the broadcast-signal processor and WDM optical demultiplexer operate over a SDH SONET transport network.

However, Williams teaches (A) the broadcast-signal processor (607 and 604 in fig. 6) and WDM optical demultiplexer (603 in fig. 6) operating over a SONET transport network (col. 13 lines 64-66, col. 14 lines 51-58, col. 15 lines 1-13, 21-23). It is beneficial to use SONET transport network in integrated services networks. The reason for that is that SONET network elements can support and process signals from a variety of providers, as well as accommodate bandwidth requirements and quality of service. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use SONET transport network as taught by Williams into the system of Lehman as to provision support and processing of signals from a variety of providers, and to accommodate bandwidth requirements and quality of service.

Further, Lehman and Williams fail to teach (B) the broadcast-signal processor

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that processes the opto-electrically converted signal on the basis of an MPEG2 multi-program transport stream (MPTS) before further processing in the zapping-protocol processor. However, Ovadia teaches (B) the broadcast-signal processor (21 in fig. 2) that processes the opto-electrically converted signal on the basis of an MPEG2 multiprogram transport stream (MPTS) (col. 4 lines 5-11) before further processing in the zapping-protocol processor (23 in fig. 2, col. 4 lines 26-34). It is advantageous to use MPEG2 multi-program transport stream (MPTS) because it allows to realize HDTV (high definition TV) picture by providing a way to compress the digital video signal to a manageable bit rate: an uncompressed HDTV picture requires a raw bandwidth exceeding 1 Gbps, however, MPEG2 compressed signal for broadcast HDTV requires only 12-20 Mbps. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use MPEG2 multi-program transport stream (MPTS) as taught by Ovadia into the system of Lehman and Williams as to realize high quality HDTV while effectively managing the bandwidth.

Regarding claim 7, Lehman discloses all the subject matter as set forth in claims 5 and 6, but fails to teach that the SDH SONET optical signal is a synchronous-transfer mode (STM)-n or synchronous-transfer-signal level (STS)-n signal. However, Williams teaches the SDH SONET optical signal that is a synchronous transfer-signal level (STS)-n signal (col. 13 lines 33-39). It is desirable to transmit SDH SONET optical signal as a synchronous-transfer signal level (STS)-n signal. By providing dynamic allocation of STS frames the system allows SONET technology to efficiently carry both data and voice traffic by add/drop multiplexing of both isochronous traffic, such as voice and video, and non-isochronous traffic, such as data.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lehman's system by transmitting SDH SONET optical signal as a synchronous-transfer-signal level (STS)-n signal as taught by Williams as to allow SONET technology to efficiently carry both data and voice traffic by add/drop multiplexing of both isochronous traffic, such as voice and video, and non-synchronous traffic, such as data.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lehman in view of Williams (US 5,808,767).

Regarding claim 8, Lehman discloses the system as set forth in claim 1, wherein the user gateway (fig. 8) comprises: an input/output unit for opto-electrically converting the optical signal from the ONU and electro-optically converting upstream information from the user and transmitting the converted upstream information to the ONU (410 and 412 as a part of 104 in fig. 8, col. 15 lines 44-51, 55-59); a distributor (400 in fig. 8) for distributing the broadcast signal to an external broadcast receiver (TV A in fig. 8) and outputting the communication signal to a communication processor (401, in fig. 8) the communication processor (450, 453 and 451 in fig. 8) for transferring the communication signal to the user (col. 16 lines 60-65 and col. 17 lines 1-5) and transferring the upstream information from the user to the input/output unit (104 in fig. 8) (col. 17 lines 8-22); a user-input unit (460 in fig. 8) for transferring information indicative of at least one broadcast channel selected by the user to the input/output unit (col. 16 lines 38-49). Lehman fails to teach a time-slot separator, main function of which is separating the signal output from the input/output unit into the broadcast signal and the communication signal. However, Williams teaches a time-slot separator (911 in fig. 9) for separating the signal output from the input/output unit (908 in fig. 9) into the broadcast signal and the communication signal

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(by management function of the unit 91 1 - col. 16 lines 51-54, lines 42-50). It is desirable to use a time-slot separator for separating the signal into the broadcast signal and the communication signal. The reason for that is that it allows to dynamically allocate bandwidth to a user in cases of quick changes of service or the bandwidth requirements. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lehman's system by using a time-slot separator as taught by Williams in order to dynamically allocate bandwidth to a user on demand.

Response to Arguments

7. Applicant's arguments filed 12/29/06 have been fully considered but they are not persuasive. As noted above, the examiner maintains that Lehman continues to read on the claimed invention even considering the amended claim language. Lehman clearly teaches the "zapping protocol" claimed and the features of that claimed protocol. Furthermore, the protocol for selecting a broadcast signal conforms to at least the video-on-demand standard, the cable broadcast standard, and the point-to-multipoint broadcast standard.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'A. Bello', with a stylized flourish at the end.

Agustin Bello
Primary Examiner
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AB.